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IN THE UNITED STATES PATENT OFFICE

Art Unit : 1711
Examiner : Jeffrey C. Mullis
Applicants : Petar R. Dvornic et al.
Appln. No. : 09/888,736
Filing Date : June 25, 2001
Confirmation No. : 2078
For : HYPERBRANCHED POLYMER DOMAIN NETWORKS AND
METHODS OF MAKING SAME

Mail Stop Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

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Dear Sir:

DECLARATION OF JIN HU UNDER 37 C.F.R. 1.131

I, Jin Hu, hereby declare the following:

1. I am a coinventor of the invention disclosed and claimed in the above-identified United States patent application.

2. This Declaration establishes completion of my invention in the United States at a date prior to October 7, 1999, which is the effective date of U.S. Patent No. 6,448,337 to Gaddam et al., which was applied in a prior art rejection of the claims in my above-identified patent application.

3. This Declaration also establishes completion of my invention in the United States at a date prior to June 19, 2001, which is the effective date of United States Patent Application Publication No. US 2003/0096908 to Heilmann et al., which was applied in a prior art rejection of the claims in my above-identified patent application.

4. More specifically, this Declaration and the exhibits and/or records accompanying this Declaration show that the invention defined in claims 1-5, 12-17 and 24 of my above-identified patent application was conceived and reduced to practice by me and my coinventors prior to October 7, 1999, the filing date of U.S. Patent No. 6,448,337, and

consequently before the June 19, 2001 effective filing date of United States Patent Application Publication No. US 2003/0096908.

5. Attached hereto are Exhibits 1, 2, 3 and 4, which show that the claimed invention was conceived and reduced to practice by me and my coinventors prior to October 7, 1999, i.e., before the effective filing dates of U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908.

6. The attached Exhibit 1 (page 42 of my Laboratory Book No. 576) shows that 0.1 grams of a hyperbranched polyurea having amine (NH_2) functional groups were reacted with 0.175 grams of a linear polydimethylsiloxane (PDMS) polymer having terminal epoxy functional groups. The resulting cross-linked product had a yield of 0.230 grams, and gelation (cross-linking) was achieved as shown by insolubility in common solvents. This example shows that a curable composition comprising a hyperbranched polymer having a plurality of functional groups of a first type (NH_2), and a polymer having functional groups of a second type (epoxy), wherein the functional groups of the second type are reactive with the functional groups of the first type was conceived and reduced to practice prior to October 7, 1999. Thus, the subject matter of claim 1 was conceived and reduced to practice prior to the effective filing dates of both U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908. Exhibit 1 shows that gelation was achieved, i.e., that a cured reaction product was prepared, and therefore shows that the subject matter of claim 13 was also conceived and reduced to practice prior to the effective filing dates of U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908. Because the second reactant in Exhibit 1 (PDMS having terminal epoxy groups) is a telechelic linear polymer having functional groups at the two ends of the polymer, Exhibit 1 also shows that the subject matter of claims 3, 5, 15 and 17 was conceived and reduced to practice prior to the effective filing dates of U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908. Because the hyperbranched polymer shown in Exhibit 1 is a hyperbranched polyurea, Exhibit 1 shows that the subject matter of claims 12 and 24 was conceived and reduced to practice prior to the effective filing dates of U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908.

7. The attached Exhibit 2 (pages 21 and 25 of my Laboratory Book No. 590) shows that a hyperbranched polyurea having terminal functional groups hydrolyzable triethoxysilyl groups was combined with a linear polydimethylsiloxane polymer having triethoxysilyl groups pendant to the main chain backbone. As indicated on page 25 of Book No. 590, the reactants were cured at 95°C overnight. Thus, Exhibit 2 shows that the subject matter of claims 4 and 16 were conceived and reduced to practice prior to the effective filing dates of U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908.

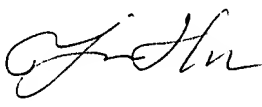
8. The attached Exhibit 1 (page 42 of my Laboratory Book No. 576), Exhibit 3 (pages 27 and 31 of my Laboratory Book No. 576) and Exhibit 4 (columns 9 and 10 of U.S. Patent No. 6,534,600) together show that a hyperbranched polyurea having both amine (NH_2) functional groups and polydimethylsiloxane arms (compound 1 at page 42 of my Laboratory Book No. 576) was prepared by reacting a hyperbranched polyurea having amine functional groups with an epoxy polydimethylsiloxane polymer as shown at page 31 of my Laboratory Book No. 576. The hyperbranched polyurea shown on page 31 of my Laboratory Book No. 576 was prepared as shown at page 27 of my Laboratory Book No. 576. The resulting amine-terminated hyperbranched polyurea (shown as a reactant at page 31 of my Laboratory Book No. 576) was characterized and described in Example 1 of U.S. Patent No. 6,534,600 (Exhibit 4). As can be seen at column 10, lines 64-66 of U.S. Patent No. 6,534,600 (Exhibit 4), the amine-terminated hyperbranched polyurea had a number average molecular weight of 564 and a weight average molecular weight of 833 (determined using GPC technique). It is my firm opinion and belief that the hyperbranched polyurea reaction product (compound 1 on page 42 of my Laboratory Book No. 576) of the amine-terminated hyperbranched polymer having a number average molecular weight of 564 and weight average molecular weight of 833 with an epoxy-terminated linear polydimethylsiloxane in accordance with the reaction scheme shown on page 31 of my Laboratory Book No. 576 would have a weight average molecular weight in the claimed range between about 1000 and about 25000. Therefore, it is my firm opinion and belief that the attached Exhibits 1, 3 and 4 show that the subject matter of claims 2 and 14 were conceived and reduced to practice prior to the effective filing dates of U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908.

9. Thus, the facts set forth herein, in conjunction with the attached Exhibits 1 and 2 constitute evidence showing that the subject matter of claims 1-5, 12-17 and 24 were conceived and reduced to practice prior to the effective filing dates of U.S. Patent No. 6,448,337 and United States Patent Application Publication No. US 2003/0096908.

10. All acts and events described herein took place in the United States of America.

I declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true, and further, these statements are made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

September 24, 2003
Date



Jin Hu